

## CLAIMS

1. A system for providing referential integrity for heterogenous links, comprising:  
an RDBMS providing referential integrity for homogenous links; and  
a software layer on top of the RDBMS for causing the RDBMS to provide referential integrity for heterogenous links.

2. The system of Claim 1, wherein the software layer maintains at least one table.

3. The system of Claim 2, wherein the table is accessed upon an attempted deletion or updating of a tuple referenced by a link, and the attempted deletion or updating is selectively disallowed based on the table.

4. The system of Claim 2, wherein the software layer includes at least one stored procedure accessible by an application to insert, update, or delete a tuple while ensuring referential integrity in heterogenous links associated with the tuple.

5. A computer-implemented method for preventing dangling pointers in heterogeneously scoped links, comprising the acts of:

providing at least one heterogeneously scoped link (HSL) table, at least one table having a heterogeneously scoped link column, the HSL table being associated with the heterogeneously scoped link column; and

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accessing the HSL table to ensure referential integrity in an RDBMS.

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6. The method of Claim 5, wherein the HSL table is accessed when a link attribute is

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sought to be changed.

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7. The method of Claim 5, wherein the HSL table is accessed when a tuple is sought to

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be changed or deleted.

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8. The method of Claim 5, wherein the HSL table is established by an RI table.

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9. The method of Claim 5, further comprising providing at least one trigger useful in

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selectively disallowing operations.

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10. The method of Claim 5, further comprising providing at least one stored procedure

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accessible by an application to insert, update, or delete a tuple while ensuring referential integrity in

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heterogenous links associated with the tuple.

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11. A computer program product including computer usable code means programmed with

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logic for ensuring referential integrity in an RDBMS having at least one table with at least

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one column of heterogeneously scoped links, the program product comprising:

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computer readable code means for maintaining a table; and

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6 *3*  
*ant*

computer readable code means for using the table to ensure that operations on tuples do not result in a heterogeneously scoped link pointing to no tuple.

1 12. The computer program product of Claim 11, further comprising:  
2 computer readable code means for establishing at least one trigger useful in  
3 cooperation with the table for selectively disallowing operations.

1 13. The computer program product of Claim 12, further comprising computer readable  
2 code means for establishing at least one of: a delete trigger, and an update trigger.

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3 14. The computer program product of Claim 11, further comprising computer readable  
code means for inserting, updating, or deleting a tuple while ensuring referential integrity in  
heterogenous links associated with the tuple.

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18. <sup>15</sup> A system for supporting trigger, comprising:  
an RDBMS providing referential integrity for homogenous links; and  
a software layer on top of the RDBMS for causing the RDBMS to support triggers.

1 ~~19.~~ <sup>16</sup> The system of Claim 18, wherein the software layer maintains at least one table and  
2 establishes at least one trigger.

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1 20. The system of Claim 19, wherein the software layer establishes at least one of: a delete  
2 trigger, and an update trigger.

1 21. 18 The system of Claim 20, wherein the trigger accesses the table upon an attempted  
2 deletion or updating of a tuple referenced by a link, and the attempted deletion or updating is  
3 selectively disallowed based on the table.

1 22. 19 The system of Claim 19, wherein the software layer includes at least one stored  
2 procedure accessible by an application to insert, update, or delete a tuple while ensuring referential  
integrity in heterogenous links associated with the tuple.